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Research Article

# The Effect Of Complementary Guide Imagery Therapy In Reducing Pain Levels And Increasing Self-Efficacy Of Patients After Joint Arthroplasty Replacement Surgery

**Jusrianti Jusman[1*], Blacius Dedi[1], Nandang Ahmad Waluya[1]**

[1]Master of Nursing Study Program, Faculty of Health Sciences and Technology, Jenderal Achmad Yani University Cimahi, Indonesia

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**Correspondence**

Phone: (+62) 852 9438 9128
E-mail:
jusmanjusrianti2025@gmail.com

**Website**

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**ABSTRACT**

The number of patients undergoing joint replacement arthroplasty surgery worldwide is increasing by approximately 71-85% per year, with unpleasant side effects such as pain and a feared decrease in self-efficacy. Currently, treatment still focuses on pharmacological therapy, with variations in non-pharmacological therapy, guided imagery. This study aimed to determine the effect of complementary guided imagery therapy on pain levels and self-efficacy in patients after joint replacement arthroplasty surgery at Pelamonia Class II Hospital, Makassar. This study was a quasi-experimental study with a pre-experimental design, a one-group pretest-posttest only design. The sample consisted of 30 patients after joint replacement arthroplasty surgery. The study instruments used standard operating procedures for guided imagery therapy, a numerical rating scale, and the updated general self-efficacy scale. Analysis included univariate analysis using frequency distribution calculations and bivariate analysis using the Wilcoxon signed-rank test. The results of the study proved that there was an effect (p-value 0,000) of complementary guided imagery therapy on reducing pain levels and increasing self-efficacy in patients after joint replacement arthroplasty surgery. It is recommended that guided imagery therapy as a non-pharmacological therapy can be used to reduce pain and increase self-efficacy in patients after joint replacement arthroplasty surgery.

## INTRODUCTION

Joint arthroplasty replacement surgery is a common problem worldwide, including in Indonesia (Widiastuti & Suhartini, 2018). Several hospitals in Indonesia prioritize quality of life for post-joint arthroplasty patients (Warsini & Mardihusodo, 2023). Total joint arthroplasty/Joint Arthroplasty Replacement (JAR) is the only surgical treatment option for end-stage osteoarthritis (OA). For hip and knee OA, JAR is one of the most successful procedures in all treatments. JAR can reduce pain experienced by patients, restore functionality, and improve quality of life. Total knee and hip arthroplasty (TKA, THA) is by far the most common surgical procedure for treating OA (Warsini & Mardihusodo, 2023).

A study by Deng et al. (2022) comparing mobility recovery and self-efficacy found that modified treatment procedures, such as complementary GI therapy to improve mobility and self-efficacy, are necessary to introduce early discharge protocols in OA cases (Meng et al., 2022). According to Deng et al. (2022), in their study on self-efficacy enhancement interventions for patients with JAR, complementary GI therapy can be used. The results obtained were exercise adherence, improved physical function, decreased anxiety and depression, and increased self-efficacy, joint function, and quality of life (Situmorang et al., 2025). Research by Fan & Chen (2020) found that post-RAD patients experience various physiological problems, such as loss of function, impaired postoperative activity, malnutrition, knee joint pain, and so on. RAD is an elective procedure successfully performed to treat refractory pain and functional limitations associated with end-stage arthritis (Chen et al., 2024). RAD is one of the most common surgical procedures in the United States, and is performed at various levels.

Joint Arthroplasty Replacement (JAR) is expected to increase globally by 71% and 85% by 2030 (Constantinescu et al., 2022). Indonesia, which still has optimal healthcare facilities, will see an increase in the number of Joint Arthroplasty Replacement (JAR) patients in every region. One of the most common, feared, and unpleasant side effects of surgery is pain. Patients undergoing JAR surgery often experience moderate to severe pain, which puts them at risk for opioid abuse or addiction (Chen et al., 2024). This pain is caused by surgical incisions, surgery, or burns that cause tissue trauma or nerve injury, such as nerve transection, compression, or stretching during the surgical procedure (Constantinescu et al., 2022).

Orthopedic procedures are known to increase pain for patients. In comparison to pain intensity in surgical procedures, 22 of the 40 medical procedures with the highest pain levels were orthopedic or trauma procedures to the extremities. Pain management is a crucial element in postoperative care for JAR because increased postoperative pain can increase the risk of complications, persistent pain, and impact the rehabilitation process (Fan & Chen, 2020).

Pain in cases of JAR can last for months to more than a year in patients, negatively impacting clinical outcomes (Meng et al., 2022). Research conducted by Vernanda et al. (2024) found that neuropathic pain is common in patients with chronic pain three months after total JAR. Gungor et al. (2019) found a high risk (31.3%) of moderate to severe persistent post-surgical pain after total JAR.

JAR patients experience pain and self-efficacy issues that need to be managed. Several studies have shown that pain and self-efficacy can be positively managed with complementary GI therapies. One component of complementary therapies is mind-body therapy. This therapy combines mental focus, breathing, and body movement to help calm the body and mind. Guided imagery, according to Complementary and Alternative Medicine

(2024), has been shown to directly reduce pain by reducing anxiety, decreasing muscle tension, and providing distraction (Khasanah & Syahruramdhani, 2023). Feelings of empowerment and relaxation increase endorphins, reducing anxiety, pain, blood loss, and the use of painkillers (Alves et al., 2020). Preoperative complementary GI therapy is an effective, easy, and low-cost intervention.

In patients with AR, pain increases, which can lead to serious complications, and self-efficacy can hinder the recovery process. A review by García dan Yaban (2020) also showed that complementary GI therapy can be used in both children and adults. Another preliminary study on non-pharmacological approaches that nurses can implement to reduce pain is complementary GI therapy. Complementary GI therapy is a holistic, mind-body technique rooted in a cognitive-behavioral approach that creates simple visualizations through fantasy exploration, storytelling, dream interpretation, or imagination (Croke, 2021). Several reviews on guided imagery have shown that GI helps manage pain in patients with musculoskeletal disorders.

The use of complementary GI therapies by many healthcare practitioners has increased. Complementary GI therapies are part of transcultural nursing (Djaafar et al., 2023). Transcultural nursing is an area of cultural science within the learning and practice of nursing that focuses on differences and similarities, respecting care, health, and illness, based on human values, beliefs, and actions. This knowledge is used to provide nursing care, particularly culturally or culturally, to humans (Djaafar et al., 2023). The concept of transcultural nursing focuses on comparative analysis of different cultures, health-illness values, caring behaviors, and nursing patterns (Djaafar et al., 2023). One example of the application of evidence-based practice in the concept of transcultural nursing is the use of complementary GI therapies as preoperative therapy for patients, which has been shown to reduce pain levels (Sriwahyuni et al., 2023).

Complementary GI therapy has been recommended as an adjunct to pain management in patients undergoing orthopedic surgery. Various mind-body therapy techniques have been shown to be effective in reducing pain. Research by Darmadi et al. (2020) demonstrated the effectiveness of complementary GI therapy in reducing pain scores in postoperative patients. Five of the articles found statistically significant pain reduction in patients after guided imagery therapy (Darmadi et al., 2020). Complementary GI therapy as a non-pharmacological management can reduce postoperative pain.

South Sulawesi Province, in the city of Makassar, has several hospitals with an increase in JAR patients such as Labuang Baji Hospital, Daya Hospital and Pelamonia Class II Hospital. The results of a preliminary study at Pelamonia Class II Hospital Makassar found the most cases of JAR patients with an average of 44 patients per month in the past year. Post-operative JAR patients were informed that 4 out of 6 patients complained of pain. Furthermore, 5 out of 6 patients reported experiencing a decrease in confidence in post-operative recovery. Post-operative JAR patients said that treatment at the hospital focused on medication. Treatment so far at the hospital still rarely uses non-pharmacological therapy to overcome complaints of pain and uncertainty or self-confidence of post-operative JAR patients in the service process. Information was found that post-operative JAR patients at Pelamonia Class II Hospital Makassar hope for non-pharmacological (complementary) therapy. Thus, researchers are interested in conducting research on the effect of complementary guided imagery therapy in reducing pain levels and increasing self-efficacy of patients after joint arthroplasty

replacement surgery at Pelamonia Class II Hospital, Makassar.

## METHOD

The research design used a quantitative quasi-experimental design with a pre-experimental design and a one-group pretest-posttest only design. In this type of research, measurements were taken before the treatment (pre-test). Then, measurements were taken again after the treatment (post-test). The treatment in this study was complementary guided imagery therapy for patients after joint arthroplasty replacement surgery.

The population in this study were post-joint arthroplasty replacement patients at Pelamonia Class II Hospital, Makassar. The sampling technique for this study was taken based on an unknown population size because the patient's nature fluctuates every month, so the most appropriate sampling technique used was accidental sampling. The determination of the sample size according to Sugiyono (2019) sample calculation obtained 30 samples of post-joint arthroplasty replacement patients at Pelamonia Class II Hospital, Makassar.

Primary data collection using a standard operating procedure (SOP) instrument for guided imagery has been reviewed by experts and tested on 10 patients at Tadjuddin Chalid Hospital, Makassar. The pain instrument uses a numeric rating scale with a Cronbach alpha value of 0.90. The self-efficacy instrument uses an updated general self-efficacy scale with a Cronbach's alpha value of 0.982. The data were analyzed using univariate data (frequency distribution calculations) and bivariate (Wilcoxon signed rank test) because the data were not normally distributed or on an ordinal scale. The study has received research ethics approval Number 106/KEPK/FITKes-Unjani/VI/2025 from the Health Research Ethics Commission of the Faculty of Health Sciences and Technology, General Achmad Yani University, Cimahi.

## RESULTS

The study also yielded two univariate analyses: pain level and self-efficacy in post-joint arthroplasty replacement patients before and after complementary guided imagery therapy. The study also yielded two bivariate analyses: hypothesis testing of the effect of complementary guided imagery therapy on pain levels and self-efficacy in post-joint arthroplasty replacement patients.

**Table. 1. Identification of Pain Levels in Post-Joint Arthroplasty Replacement Patients Before and After Complementary Guided Imagery Therapy**

| Category | Frequency | | (%) | | Mean | |
|---|---|---|---|---|---|---|
| | Pre | Post | Pre | Post | Pre | Post |
| No Pain | 0 | 0 | 0% | 0% | | |
| Mild | 0 | 26 | 0% | 86,7% | | |
| Moderate | 3 | 4 | 10% | 13,3% | | |
| Severe | 24 | 0 | 80% | 0% | 8 | 2,4 |
| Very Severe | 3 | 0 | 10% | 0% | | |
| Total | 30 | 30 | 100% | 100% | | |

Source: Research

Table 1 shows that almost all (80%) of post-joint arthroplasty replacement patients before complementary guided imagery therapy had severe pain. Almost all (86.7%) of post-joint arthroplasty replacement patients after complementary guided imagery therapy had mild pain. The average pain level before complementary guided imagery therapy was 8 and after complementary guided imagery therapy was 2.4.

**Table. 2. Identification of Self-Efficacy in Post-Joint Arthroplasty Replacement Patients Before and After Complementary Guided Imagery Therapy**

| Category | Frequency | | (%) | | Mean | |
|---|---|---|---|---|---|---|
| | Pre | Post | Pre | Post | Pre | Post |
| Low | 6 | 0 | 20% | 0% | | |
| Medium | 21 | 7 | 70% | 23,3% | 96,4 | 124 |
| High | 3 | 23 | 10% | 76,7% | | |
| Total | 30 | 30 | 100% | 100% | | |

Source: Research

Table 2 shows that the majority (70%) of post-joint arthroplasty replacement patients before the administration of complementary guided imagery therapy had moderate self-efficacy. Almost all (76.7%) of post-joint arthroplasty replacement patients after the administration of complementary guided imagery therapy had high self-efficacy. The average self-efficacy score before the administration of complementary guided imagery therapy was 96.4 and after the administration of complementary guided imagery therapy, the self-efficacy score was 124.

**Table. 3. Hypothesis Testing of the Effect of Complementary Guided Imagery Therapy on Pain Levels in Post-Joint Arthroplasty Replacement Patients**

| Intervention | Category | N | Mean Rank | Z | P Value |
|---|---|---|---|---|---|
| Pain Pre-Post Therapy Guide Imagery | Negative Ranks | 30[a] | 15.50 | -5.203[b] | 0.000 |
| | Positive Ranks | 0[b] | .00 | | |
| | Ties | 0[c] | - | | |
| | Total | 30 | | | |

Source: Research

Based on Table 3, it shows that there is a negative rank value of 30a, which means that 30 respondents (100%) experienced a decrease in pain from before to after the administration of complementary guided imagery therapy in post-joint arthroplasty replacement surgery patients. Furthermore, the results also show that the significance value of 0.000 or p-value ≤ α (0.05) means that there is an effect of complementary guided imagery therapy on reducing pain levels in post-joint arthroplasty replacement surgery patients.

**Table. 4. Hypothesis Testing of the Effect of Complementary Guided Imagery Therapy on Self-Efficacy in Post-Joint Arthroplasty Replacement Patients**

| Intervention | Category | N | Mean Rank | Z | P Value |
|---|---|---|---|---|---|
| Self Efficacy Pre-Post Therapy Guide Imagery | Negative Ranks | 0[a] | .00 | -5.099[c] | 0.000 |
| | Positive Ranks | 26[b] | 15.50 | | |
| | Ties | 4[c] | - | | |
| | Total | 30 | | | |

Source: Research

Based on table 4, it shows that there is a positive rank value of 26b, which means that 26 respondents (87%) experienced an increase in self-efficacy from before to after the administration of complementary guided imagery therapy in post-joint arthroplasty replacement surgery patients. Other results show that there is a tie value of 4c, which means that 4 respondents (13%) did not experience an increase or decrease in self-efficacy from before to after the administration of complementary guided imagery therapy in post-joint arthroplasty replacement surgery patients. Furthermore, the results also show that the significance value of 0.000 or p-value ≤ α (0.05) means that there is an effect of complementary guided imagery therapy on increasing self-efficacy in post-joint arthroplasty replacement surgery patients.

## DISCUSSION

The discussion in this study includes a combination of univariate and bivariate analysis results which resulted in 4 discussions, namely the level of pain in post-operative JAR patients before and after the administration of complementary guided imagery therapy, self-efficacy in post-operative JAR patients before and after the administration of complementary guided imagery therapy, the effect of complementary guided imagery therapy on the level of pain in post-operative JAR patients and the effect of complementary

guided imagery therapy on self-efficacy in post-operative JAR patients.

**Pain Level in Postoperative JAR Replacement Patients Before and After Complementary Guided Imagery Therapy**

The results of the study showed that almost all (80%) of post-joint arthroplasty replacement (JAR) patients had a severe pain scale. The severe pain scale experienced by post-JAR patients was in the range (7-9) with complaints of pain accompanied by difficulty communicating and difficulty in daily activities, sleep and concentration disorders. In addition, a small portion of 10% experienced a moderate pain scale and 10% experienced a very severe pain scale. The moderate pain scale experienced by post-JAR patients was in the range (4-6) with complaints of pain accompanied by impaired communication and slight disturbances in daily activities accompanied by cramps, stiffness, or a burning sensation. The severe pain scale experienced by post-JAR patients was in the range (10) with complaints of pain accompanied by only feeling pain resistance (screaming, struggling, biting something, hitting, holding something and so on) plus unclear communication and unclear activity movements.

According to the gate control theory, pain sensation is controlled by a gate mechanism in the spinal cord and in the post-operative context, techniques such as massage or physical therapy can help reduce pain by triggering this mechanism (Peleg et al., 2019). According to the nociceptive theory, it explains that these pain signals are transmitted to the brain, which causes the sensation of pain and post-operative pain often involves the use of drugs (such as analgesics) to suppress the activity of pain receptors (García & Yaban, 2020). According to the neuropathic theory, it explains that post-operative pain is usually nociceptive, in some cases, nerve damage that occurs during surgery can cause chronic neuropathic pain (Li et al., 2019).

Research by Nugent et.al (2021) and Adha and Komalasari (2024) found that severe pain ranges between 7-9, with complaints of pain accompanied by difficulty communicating and performing daily activities, sleep and concentration disturbances. Meanwhile, moderate pain ranges between 4-6, with complaints of pain accompanied by impaired communication and slight disturbances in daily activities, accompanied by cramps, stiffness, or a burning sensation (Moon et al., 2021). Furthermore, very severe pain ranges between 10, with complaints of pain accompanied by only feeling pain resistance (screaming, struggling, biting something, hitting, gripping something, and so on), plus unclear communication and unclear movement activities (Arli, 2023). Post-operative JAR patients experience tissue damage other than nerve tissue due to the surgical process (Ariawan et al., 2022).

This is in line with research findings that some patients complain of severe pain, which is an inflammatory/nociceptive pain response, meaning tissue inflammation or damage occurs (Ariawan et al., 2022). At this stage, various inflammatory mediators, such as prostaglandins, bradykinin, serotonin, and histamine, are released (Arli, 2023). These mediators are then responded to by the thalamus, resulting in pain that the patient experiences, resulting in a range of severe, even severe, pain after surgery for some time (Arli, 2023).

In line with research results, 10% of respondents experienced very severe pain and moderate pain, representing a patient's ability to respond to pain mediators that varies (Bertram et al., 2024). Pain mediators can activate and sensitize nociceptors directly and indirectly, which will change the pain stimulus in the form of potential actions that will be transmitted from the periphery to the central (Constantinescu et al., 2022). Post-operative patients with JAR will experience pain accompanied by symptoms such as difficulty

communicating, difficulty with activities, sleep and concentration disorders (Bleb & Kip, 2018). Potential actions that will be transmitted from the periphery to the central will also cause cramps, stiffness, burning, to the point that if the pain response is maximal, JAR patients can only scream, struggle, bite something, hit or make unclear activity movements to withstand the pain (Forward et al., 2015). Steps are needed to reduce pain through pharmacological therapy such as analgesics to reduce pain mediators and non-pharmacological therapy such as relaxation and distraction which can also reduce mediators and reduce pain (Fan & Chen, 2020).

The results of a study of post-operative JAR patients after receiving complementary Guided Imagery (GI) therapy showed that almost all (86.7%) patients experienced a decrease in pain scale to mild (range 1-3). Furthermore, only a small proportion (13.3%) experienced moderate pain scale (range 4-6). After administering complementary GI therapy to post-operative JAR patients, no patients were found with severe to very severe pain scale (range 7-10).

According to the gate control theory, the pain sensation of post-operative JAR patients can be reduced through complementary GI therapy techniques that provide relaxation and distraction effects to trigger pain control (Croke, 2021). According to the nociceptive theory, it explains that complementary GI therapy in post-operative JAR patients controls these pain signals transmitted to the brain to suppress the activity of pain receptors (Arli, 2023). According to the neuropathic theory, it explains that complementary GI therapy helps the recovery of nerve damage in post-operative JAR patients with imagination that relaxes the repair of the nerves that trigger pain receptors (Fan & Chen, 2020).

According to research by Peleg et al. (2019), the severity of severe to very severe pain in post-operative JAR patients will decrease with pharmacological and non-pharmacological therapy. Complementary GI therapy is a non-pharmacological therapy aimed at relaxing and distracting patients complaining of post-operative JAR pain (Arli, 2023). Research by Felix et al. (2021) explains that complementary GI therapy responds to various inflammatory or nociceptive pain mediators, resulting in a gradual decrease or improvement in patient pain.

Complementary GI therapy plays a crucial role in pain reduction through relaxation and distraction, which are key pain management mechanisms (Forward et al., 2015). The relaxation and distraction of complementary GI therapy inhibit the production of pain mediators such as prostaglandins, bradykinin, serotonin, and histamine, and regulate the thalamus, thus alleviating pain (García & Yaban, 2020). Pain that interferes with daily activities, sleep and concentration, and cramps, stiffness, and burning sensations are relaxed and reduced to a tolerable level, allowing for continued activity. Complementary GI therapy is a recommended non-pharmacological therapy that can reduce pain in post-operative JAR patients.

**Self-Efficacy in Post-JAR Surgery Patients Before and After Complementary Guided Imagery Therapy**

The study results showed that the majority (70%) of post-operative JAR patients had moderate self-efficacy. Decreased self-efficacy included the patient's inability to cope with the significant impact of post-operative JAR, identify their strengths, and generalize efforts to address the problems they faced. Furthermore, a small proportion (20%) experienced low self-efficacy, and only 10% experienced high self-efficacy.

According to Felf's confidence theory, self-efficacy is an individual's belief that they are capable of performing the actions necessary to achieve certain goals, including in the context of healthcare (Bilo, 2023). Cognitive factors theory explains

that self-efficacy is a cognitive construct involving an individual's assessment and belief in their own abilities (Raman & Sharma, 2022). Behavioral theory explains that self-efficacy develops through various sources, such as previous successful experiences, vicarious experiences (learning from others' experiences), verbal persuasion, and physiological and emotional states (Meng et al., 2022).

Meng et al.'s (2022) study explains that post-operative JAR patients experience a phase of decreased self-confidence in their ability to overcome their health problems. This is in line with the research results, where most post-operative JAR patients can have moderate to low self-efficacy, and only a small proportion have high self-efficacy. Self-efficacy in post-operative JAR patients can differ from other patients in terms of magnitude, namely the level of difficulty of the health problems they believe can be handled (Chen et al., 2024).

Self-efficacy in post-operative JAR patients also differs in terms of strength, which refers to the extent (strong or weak) of the patient's beliefs in dealing with their health problems (Deng et al., 2022). Post-operative JAR patients will experience denial. Post-operative denial is a psychological phase in which a person refuses to accept the fact that they have undergone surgery, or refuses to acknowledge the impact or consequences of the surgery (Meng et al., 2022). Post-operative JAR will shape the patient's belief in their ability to overcome their health problems (Bilo, 2023). This is also called self-efficacy, meaning the higher the patient's belief in facing their health problems, the higher the success of recovery.

JAR patients in difficult situations with low self-efficacy will easily reduce their efforts or give up (Chen et al., 2024). Conversely, JAR patients with high self-efficacy will try harder to overcome the challenges they face. Self-efficacy is a common defense mechanism after experiencing a traumatic event or major life change, such as surgery (Chen et al., 2024).

Self-efficacy in post-RAD patients varies in terms of its generality, which refers to the extent to which a patient's belief in their abilities can be addressed (Novrianto & Marettih, 2019). Improving self-efficacy is essential after RAD surgery to maintain control of thoughts, feelings, and actions while ensuring the patient remains healthy and that recovery services run smoothly (Raman & Sharma, 2022). Non-pharmacological therapies capable of enhancing self-efficacy are needed to support synergistic care and treatment for post-RAD patients (Bilo, 2023).

The results of a study of post-operative JAR patients after receiving complementary Guided Imagery (GI) therapy showed that almost all (76.7%) experienced an increase in high self-efficacy. Furthermore, only a small proportion (23.3%) had moderate self-efficacy, and after administering complementary GI therapy to post-operative JAR patients, no patients with low self-efficacy were found. According to Raman dan Sharma (2022), non-pharmacological therapy can increase self-efficacy. Increasing self-efficacy helps synergize recovery in post-operative JAR patients so they do not experience demotivation and give up in the situation (Raman & Sharma, 2022). In line with the results of the study, after administering non-pharmacological complementary GI therapy, the majority of post-operative JAR patients experienced an increase in self-efficacy.

According to Felf's confidence theory, self-efficacy can be increased through complementary GI therapy, which provides imagination and guidance to individuals' beliefs in achieving health goals (Bilo, 2023). Cognitive factors theory explains that complementary GI therapy helps increase self-efficacy by providing cognitive construction of an individual's beliefs (Chen et al., 2024). Behavioral theory explains that complementary GI therapy builds self-efficacy to develop various sources of

experience to address health problems in patients after JAR surgery (Chao et al., 2019).
According to Deng et al. (2022) research, post-operative JAR patients with low self-efficacy will maintain a psychological attitude of refusing to accept the reality of having undergone surgery, or rejecting the impact or consequences of the surgery. This, of course, if not treated, will hinder the successful recovery of their health problems. According to García dan Yaban, (2020), complementary GI therapy provides a calming effect and anxiety control, as well as strengthening motivation in post-operative JAR patients during the psychological phase, so they don't reject and learn to accept the reality of having undergone surgery.
Complementary GI therapy helps build confidence in post-JAR patients' ability to overcome health problems. These positive thoughts, feelings, and actions facilitate recovery services. This builds confidence, strengthens the patient's ability to resist giving up, and increases their expectation of strength and confidence that the impact of the surgery will be overcome and that they can cope with it (Khasanah & Syahruramdhani, 2023).

**The Effect of Complementary Guided Imagery Therapy on Pain Levels in Post-JAR Surgery Patients**

The results of the study showed that all respondents experienced a decrease in pain from before to after the administration of complementary GI therapy in post-operative JAR patients. Furthermore, the results also showed that the significance value of 0.000 or p-value ≤ α (0.05) means that there is an effect of complementary GI therapy on reducing pain levels in post-operative JAR patients. According to the gate control theory, it explains that pain sensations can be controlled by the influence of non-pharmacological therapy (Warsini & Mardihusodo, 2023). One non-pharmacological therapy, namely complementary GI therapy, which is in line with the results of the study, has an effect on reducing pain after JAR surgery. The nociceptive theory of pain explains that pain signals are inhibited by the process of complementary GI therapy from being transmitted to the brain. This causes the sensation of pain after JAR surgery to not release many pain receptors or mediators (Nur Rofi'ah et al., 2023). The neuropathic theory of pain also explains that post-operative pain that causes nerve damage is relaxed, restoring nerve function to work without triggering pain mediators (Lorna & Novianti, 2018).
According to research by Ahmed, Afshan, and Khan (2022), complementary GI therapy can help reduce pain, both acute and chronic, through psychological mechanisms. This technique involves using imagination to create calming and pleasant mental images, which can distract from the sensation of pain and induce relaxation (Ariawan et al., 2022). The mechanism of pain reduction begins with attention diversion. Research by Syahfitri dan Saraswati (2022)explains that attention diversion in complementary GI therapy focuses from pain to positive sensory and emotional experiences created through imagination. Next, entering the relaxation stage, this technique triggers a relaxation response in the body, which can reduce muscle tension and decrease the production of stress hormones, contributing to pain reduction. In line with the results of research based on attention diversion and relaxation, complementary GI therapy has an effect on reducing pain levels in post-JAR surgery patients. The effect of complementary GI therapy on reducing pain levels in post-JAR surgery patients creates a modulation process of the autonomic nervous system related to pain control (Bertram et.al, 2024).
According to Bilo (2023), GI complementary therapy can influence the autonomic nervous system, which plays a role in regulating pain and inflammation

responses. Furthermore, GI complementary therapy helps increase endorphin production. Several studies have shown that GI complementary therapy can trigger the release of endorphins, natural substances in the body that have analgesic effects, resulting in pain relief (Bilo, 2023). GI complementary therapy, in its role of reducing pain, can address the various types of pain experienced by patients after JAR surgery. Types of pain that can be reduced include chronic and acute pain from injury, trauma, or the effects of surgery, as well as common problems such as menstrual pain, headaches, and other pain (Bilo, 2023). GI complementary therapy has been shown to be effective in reducing chronic pain such as back pain, arthritis pain, and neuropathic pain (Bleb & Kip, 2018).

This therapy can also help reduce acute pain, such as post-operative pain or pain during medical procedures. Complementary GI therapy can be an effective non-pharmacological intervention for reducing menstrual pain and headache intensity, especially in patients with mild head injuries (Bleb & Kip, 2018). Implementing complementary GI therapy requires fostering a trusting relationship (Darmadi et al., 2020). Nurses or therapists need to build a good relationship with the patient to create a safe and comfortable environment (Darmadi et al., 2020). Furthermore, for maximum results, explain the complementary GI therapy procedure, including its purpose, procedures, and benefits. Create a calm atmosphere by encouraging the patient to sit or lie down in a quiet and comfortable place. Provide guided imagery by the nurse or therapist to guide the patient to imagine calming and pleasant situations or scenes (Darmadi et al., 2020). According to Ndama da Ismunandar (2023) and several other studies, complementary GI therapy is a safe and effective non-pharmacological therapy for reducing various types of pain. This technique can provide significant benefits for patients, especially in the context of holistic care and a drug-free approach, as research has shown it can reduce pain.

**The Effect of Guided Imagery Complementary Therapy on Self-Efficacy in Post-JAR Surgery Patients**

The results of the study showed that most respondents experienced an increase in self-efficacy from before to after the administration of GI complementary therapy in post-operative JAR patients. However, the results also showed that there was a small portion of GI complementary therapy in post-operative JAR patients who did not experience an increase or decrease in self-efficacy from before to after the administration of GI complementary therapy. Furthermore, the results also showed that a significance value of 0.000 or p-value ≤ α (0.05) means that there is an effect of GI complementary therapy on increasing self-efficacy in post-operative JAR patients. GI complementary therapy or guided imagery can influence self-efficacy by helping post-operative JAR patients imagine themselves succeeding in certain situations, which in turn can increase their confidence in their own ability to achieve goals (Acar, 2019).

According to Shorey and Lopez (2021), the Felf Confidence Theory on Self-Efficacy requires the growth and development of confidence in post-operative patients with AR surgery to create synergy between the service provider (nurse) and the service recipient (patient). This synergy can be facilitated by complementary GI therapy, which provides guidance to patients in achieving their health goals. Cognitive factors theory adds that complementary GI therapy provides directed imagination to enhance cognitive construction, thus providing patients with positive thoughts that can increase self-efficacy (Lolo & Novianty, 2018). Behavioral theory suggests that self-efficacy can create optimal use of experiences as lessons and resources for

post-operative patients to overcome health problems (Vernanda et al., 2024).

Complementary GI therapy is a relaxation technique that involves using imagination to create positive and calming mental experiences (Sriwahyuni et al., 2023). In this therapy, post-operative JAR patients are guided to imagine themselves in a peaceful and pleasant environment and to imagine themselves successfully overcoming challenges or achieving goals. Complementary GI therapy influences self-efficacy by helping post-operative JAR patients experience the positive sensations and emotions associated with success, even before they actually achieve it in the real world (Syahfitri & Saraswati, 2022).

Complementary GI therapy influences self-efficacy by strengthening self-beliefs, such as by imagining themselves succeeding, individuals can begin to believe they have the ability to achieve similar goals in real life (Syahfitri & Saraswati, 2022). Complementary GI therapy also influences self-efficacy by reducing anxiety and tension, which often serve as barriers to action and achieving their goals (Nur Rofi'ah et al., 2023). Self-efficacy influenced by complementary GI therapy stems from the strengthening of motivation for post-JAR surgery patients to take the necessary actions to achieve their goals (Vernanda et al., 2024). Furthermore, complementary GI therapy can help individuals develop better coping skills in the face of challenges and stress, which in turn can increase their self-efficacy (Vernanda et al., 2024).

The application of GI complementary therapy that affects self-efficacy, such as post-operative JAR patients, for example, a former athlete might use GI complementary therapy to imagine themselves winning a match, which can increase their confidence before the actual match. The application of GI complementary therapy that affects self-efficacy, such as post-operative JAR patients, for example, students or college students who are preparing for exams or final assignments to imagine themselves answering questions correctly and feeling calm and confident when doing the exam. The application of GI complementary therapy that affects self-efficacy, such as post-operative JAR patients who are recovering from an injury might use GI complementary therapy to imagine themselves fully recovering and returning to normal activities, which can increase their hope and motivation to recover (Wirbiezcas, 2019). GI complementary therapy is an effective tool for increasing self-efficacy because it can help post-operative JAR patients build confidence in their own ability to achieve their goals (Situmorang & Nurmansyah, 2023).

The positive and calming mental experience of complementary GI therapy can help post-operative JAR patients overcome obstacles and reach their full potential. According to Ndama dan Ismunandar (2023), as well as several studies, complementary GI therapy is a safe and effective non-pharmacological therapy for increasing self-efficacy. This technique can provide significant benefits for post-operative JAR patients, in post-operative recovery. This non-pharmacological approach is in line with research results that have been shown to have an effect on increasing self-efficacy.

## CONCLUSIONS AND RECOMMENDATIONS

There is an effect (p-value 0.000) of complementary guided imagery therapy on reducing pain levels in patients after joint arthroplasty replacement surgery. There is an effect (p-value 0.000) of complementary guided imagery therapy on increasing self-efficacy in patients after joint arthroplasty replacement surgery.

Hospitals can establish a policy for implementing complementary guided imagery therapy as a non-pharmacological therapy to manage pain complaints in post-joint arthroplasty replacement patients to improve patient satisfaction with the services provided. Patients can choose non-

pharmacological therapy (complementary guided imagery therapy) as an alternative to reduce pain and increase self-efficacy to improve health recovery and reduce treatment costs.

Complementary guided imagery therapy can be used as a reference to enrich nursing interventions in addressing pain and mental health issues resulting from low self-efficacy. Research development using qualitative or mixed-method data collection can add to comprehensive research findings and also examine other non-pharmacological therapies to address pain reduction and increase self-efficacy.

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